

Notice of Allowability

Application No.

09/963,463

Examiner

Tracy Dove

Applicant(s)

NAKANISHI ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/19/04.
 2. ☒ The allowed claim(s) is/are 1-3.
 3. ☒ The drawings filed on 27 September 2001 are accepted by the Examiner.
 4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

This Action is in response to the after final amendment filed on 5/17/04 and the supplemental after final amendment filed on 5/19/04. Both amendments have been entered and the application is in condition for allowance.

Allowable Subject Matter

Claims 1-3 are allowed.

The following is an examiner's statement of reasons for allowance: the claims are directed toward a nonaqueous secondary cell having a positive electrode active substance comprising a mixture of a lithium-nickel-cobalt-manganese composite oxide represented by the formula $\text{LiNi}_{1-x-y}\text{Co}_x\text{Mn}_y\text{O}_2$, wherein $0.5 < x+y < 1.0$, $0.1 < x < 0.6$ and $0.2 < y < 0.5$ and a lithium manganese composite oxide represented by the formula $\text{Li}_{(1+z)}\text{Mn}_2\text{O}_4$ wherein $0 \leq z \leq 0.2$.

The prior art does not disclose the claimed positive electrode active material mixture. Numata (WO00/13250 and EP1117145) teaches a positive electrode active material including (A) a lithium manganese composite oxide and (B1) at least one lithium-nickel composite oxide. The lithium-nickel composite oxide may be represented by the formula $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$ wherein $0 < x \leq 0.5$ and M is at least one metal element selected from a group consisting of Co, Mn, Al, Fe, Cu and Sr (see abstract). As the lithium manganese composite oxide, LiMn_2O_4 having a spinel structure is preferable (page 6, lines 19-24). In the lithium-nickel composite oxide represented by the formula $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$, M may be two or more dope metal elements as long as the sum of the composition ratios of the dope metal elements is x (page 7, lines 33-40). Cobalt is a preferred dope metal (page 7, line 41). Numata teaches in the lithium-nickel composite oxide represented by the formula $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$, M may be two dope metals Co and Mn (page 19, lines

Art Unit: 1745

36-41). Numata does not explicitly teach that the sum of the composition ratios of the dope metal elements "x" may be greater than 0.5 (as required by the claimed invention). At least Tables 6-8 and 10 of the instant specification teach unexpected results for the claimed lithium-nickel-cobalt-manganese composite oxide formula. Note Table 6 teaches a comparative example wherein the amount of nickel is 0.5 (which indicates that dope metal elements are together 0.5). This comparative example (reads on prior art) does not give improved output power density and input power density. The claimed invention is commensurate in scope with the examples provided in the specification.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Tracy Dove". The signature is fluid and cursive, with the first name "Tracy" and last name "Dove" clearly distinguishable.

Tracy Dove
Patent Examiner
Technology Center 1700
Art Unit 1745

June 1, 2004